August 28th, 2019

Mr. Jeffrey Robinson
Branch Chief, Air Permits, Monitoring, and Grants Branch
USEPA Region 6
1201 Elm Street, Ste. 500
Dallas, Texas 75270-2102

Re: Response to Request for Additional Information on PSD and Title V Applications
Texas GulfLink Deep Water Port Project

Dear Mr. Robinson:

We trust this letter finds you and your team well.

On behalf of Texas GulfLink, LLC (Texas GulfLink), please see our response to your request for additional information on the Prevention of Significant Deterioration (PSD) and Title V air permit applications for Texas GulfLink's proposed deep water port project. The PSD and Title V air permit applications were received by EPA-6 on July 3rd, 2019. Texas GulfLink received the letter from EPA-6 requesting additional information on August 2nd, 2019. Texas GulfLink informed Mr. Brad Toups on August 9th, 2019 that we would be able to respond to the request by the desired September 1st, 2019 date.

The following format of responses follows the August 2nd letter from EPA-6. We have copied the agency's questions/requests below and provided Texas GulfLink's response after each in **blue**. Additional information from our application or industry standards are provided in **green.** Supporting documentation is included in the Attachment to this response. Please note that we have responded to all questions included in the August 2nd EPA-6 letter and want to thank the Region 6 team for their availability to discuss various topics within the letter.

We sincerely appreciate any further opportunity to continue this dialogue and welcome your comments.

If you have any additional questions, please feel free to contact:

Tyler M. Abadie, P.E., *Texas GulfLink – Deepwater Port Licensing Lead*, at (504) 834-3040 or by e-mail at tyler@abadie-williams.com, (or)

James L. Smith, *Texas GulfLink – Environmental Project Manager*, at (281) 397-9016 or by email at james.smith@c-ka.com.

Sincerely,

Tyler M. Abadie, P.E.
Texas GulfLink – Deepwater Port Licensing Lead

General Preconstruction Authorization Related

1. Please provide additional supporting technical documentation to allow for the verification of the basis for the emission calculations. Specifically, the true vapor pressure of the crude oil (psia), molecular weight of vapors (lb/lb-mole), material composition data of the associated emissions (speciated) for the crude oil/condensate proposed to be used for the export operation. Please include information of the full range of material which may also include any sour crude (such as West Texas Sour) or Bakken or other similar tight, higher vapor pressure and higher gas/oil ratio crude oil. In the application, emissions calculations related to the crude oil proposed to be handled relies largely on AP 42 factors, yet the project description clearly suggests that clearing an excess of shale play and other newly online domestic crude sources would indicate that the crude characterization might be substantially different, including sulfur content and vapor pressure than that referenced by AP42. Please provide a means by which key emission related factors of crude will be determined and documented in operational and ongoing manner.

Response: Texas GulfLink's current commercial commitments focus on WTI and WTI Light crude qualities and specifications. Texas GulfLink reached out to the Crude Oil Quality Association for reflective sampling that would match the proposed pipeline crude type that would be connecting to the Texas GulfLink onshore storage terminal. Industry leader Intertek was able to provide the following benchmarks:

Range: (36.1 – 44 Deg API): VPCR4: Ptot: 4.0 to 7.0 psi

Average: (36.1 – 44 Deg API): VPCR 4: Ptot 6.0 psi (Average based on Samples Primarily reported for 38+ Deg API)

Range: ((44.1 to 49.9 Deg API): VPCR 4: Ptot: >7.0 psi

Average: (44.1 to 49.9 Deg API): VPCR4 : Ptot: 8.0 psi (Average based on Samples Primarily reported for <48.0 Deg API+)

In the PSD emission rate calculations, the AP-42 calculation method for crude loading into marine vessels (AP-42, Sec. 5.2.2.1.1, Equation 2) was used along with worst-case emission factors (e.g. assumed unclean ship tanks, volatile previous cargo, etc.). The assumed maximum crude True Vapor Pressure (TVP) of 7.3 psi (based on a Reid Vapor Pressure of 8 psi) is consistent with the maximum vapor pressure shown in the above benchmarks. However, Texas GulfLink will be providing a supplement to the initial PSD emission rate calculations and offshore modeling to address crudes up to an RVP of 10 psi. At such a maximum RVP, the TVP of the crude would be higher than the 7.3 psi modeled, making the estimated emission rates conservatively high. An RVP 10 would encompass the benchmark provided by all possible incoming barrels from upstream connectivity to the Texas GulfLink storage terminal.

Texas GulfLink will require shippers to periodically update their crude oil assays and to include RVP and TVP values. Texas GulfLink will have a 3rd party crude oil inspection company test the crude oil in the tanks for RVP and TVP on a quarterly basis and maintain the results for audit purposes.

2. A BACT analysis is required for each pollutant from each emissions unit at the site: for those emissions units and pollutants subject to PSD control technology review, then the appropriate review and assessment; for the remainder, the state BACT analysis for each applies as if each emission unit/pollutant emitted combination were located in an attainment area within Texas. Please provide emissions estimates for the other emissions and include in that assessment why the emissions rates comply with state BACT requirements under 30 TAC Chapter 116.

Response: Emission rate calculations for all PSD-regulated criteria pollutants (i.e., NO_2, CO, SO_2, PM, PM_{10}, $PM_{2.5}$, and VOC) expected to be emitted by the proposed Texas GulfLink offshore facility were performed (see Tables 3-1 and 3-2 in the PSD permit application). For the PSD permit application, a federal (top-down) BACT applicability review was performed for those pollutants (NOx and VOC) and their emissions units that triggered PSD review (see Section 5.0 of the PSD application).

For those pollutants that did not trigger federal BACT review (CO, SO_2, and PM), a TCEQ Tier I BACT review was performed in response to Question 2 above. TCEQ has a 3-tiered BACT review process, where Tier I is the most stringent BACT (Tier III is equivalent to the federal top-down BACT process). The following table shows the emissions source type, pollutant, TCEQ Tier I BACT requirement, the last date the Tier I BACT was updated, Texas GulfLink's proposed BACT, and whether the proposed BACT meets TCEQ's Tier I BACT.

Emissions Source Type	Pollutant	TCEQ Tier I BACT Requirement	Last Date BACT Updated	Proposed BACT	Meets State-BACT?
Non-Emergency Diesel-Fired Engines (electric generators and portal cranes)	NOx, VOC, CO, SO_2	Meeting the requirements of 40 CFR Part 60, Subpart IIII. Firing ultra-low sulfur diesel fuel (no more than 15 ppm sulfur by weight).	10/1/2018	Comply with NSPS IIII (max 15 ppm_w sulfur)	Yes
	PM	Meeting the requirements of 40 CFR Part 60, Subpart IIII. Firing ultra-low sulfur diesel fuel (no more than 15 ppm sulfur by weight).	10/1/2018	Comply with NSPS IIII (max 15 ppm_w sulfur)	Yes
Emergency Diesel-Fired Engines (firewater pumps)	NOx, VOC, CO, SO_2, PM	Tier I BACT not established for compression ignition, only for spark ignition. See federal BACT review for NOx and VOC.			
Equipment Leak Fugitives	VOC	Provide details about applicable option: 1. Uncontrolled VOC emissions < 10 tpy – no control required	10/1/2018	Max uncontrolled VOC emissions	Yes

Emissions Source Type	Pollutant	TCEQ Tier I BACT Requirement	Last Date BACT Updated	Proposed BACT	Meets State-BACT?
(including sampling)		2. 10 tpy < uncontrolled VOC emissions < 25 tpy – 28M LDAR program. 75% credit. 3. Uncontrolled VOC emissions > 25 tpy – 28VHP LDAR program. 97% credit for valves, 85% for pumps and compressors. 4. VOC vapor pressure < 0.002 psia - no inspection required, no fugitive emissions expected. For emissions of chlorine and other approved odorous compounds: AVO inspection twice per shift.		= 0.05 tpy. No control required.	
	H_2S	AVO inspection twice per shift	10/1/2018	AVO inspection of platform fugitives	Yes
MSS – Pipeline Pigging	VOC	*Mechanical & Agricultural Sources* – MSS BACT not established. Specify controls. *Coating Sources* – MSS BACT not established. *Chemical Sources* – MSS BACT not established for pipeline pigging.	10/1/2018		
MSS: Pump, VOC > 0.5 psia (routine pump maintenance)	VOC	*Mechanical & Agricultural Sources* – MSS BACT not established. Specify controls. *Coating Sources* – MSS BACT not established. *Chemical Sources* – Send material to the flare knockout drum to separate into vapors, light liquids, and heavy liquids. Vapors are routed to flare. Liquids go to slop drums or strippers. Drain any remaining liquid to a pan then pump to a vacuum truck or put in a closed container. *Alternative 1*: Send the material to the refinery slop drums to be recovered. If there is any remaining liquid in the system, drain it to a pan then pump to a vacuum truck or put in a closed container. *Alternative 2*: Drain to a recovery tank that is vented to the flare. Drain any remaining liquid to a pan then pump to a vacuum truck or put in a closed container.	2006	When open pump, drain any crude oil remaining in pump to platform sump then to a closed slop tank for recycle.	Yes – Alternative 3 under Chemical Sources

Emissions Source Type	Pollutant	TCEQ Tier I BACT Requirement	Last Date BACT Updated	Proposed BACT	Meets State-BACT?
		Alternative 3: Steam material to the enclosed sewer. Collect hydrocarbons in the unit sump, to be pumped to the slop tanks and recycled. If any liquids remain, steam or drain to a pan, then pump to vacuum truck or put in closed container.			

As shown, the non-PSD pollutants will be emitted from the diesel-fired engines (i.e., combustion emissions). The non-PSD emissions units/pollutants will meet TCEQ's Tier I State-BACT. TCEQ Maintenance, Startup, and Shutdown (MSS) activities not addressed in the federal BACT review in the PSD application are also included in the above table, and they meet TCEQ's Tier I BACT as well.

3. Will there be any degassing or cleaning of any VLCC holds or platform based tanks or surge vessel? If so, please characterize and identify the regulatory requirements for such operations. Also, there was no indication that the surge vessel is actually vented to atmosphere. If it is, then how are emissions from that vent controlled?

Response: Volume IV of the Texas GulfLink deepwater port application contains the offshore operations manual. The follow except exists:

OPERATIONS MANUAL
Section 25.13 Boarding Packages
Form: "Statement of General Requirements"

The platform surge tanks should not require cleaning in the first ten years due to the short-term nature of any cargo transferred into them. The surge tank is not intended to be used as a storage tank. Crude oil volumes accumulated by a surge protection event or maintenance will be pumped back into the main cargo line, as the Tanker's loading operation resumes.

Emissions from the platform surge tanks are not controlled. Emissions are vented to atmosphere from the surge tank by a goose neck vent pipe fitted to the top of the surge tank on the rare occasion the surge system is activated. The platform surge tanks will only contain oil if there is an unexpected surge of oil pressure in the delivery pipelines or if there is a need to use the surge tank to temporarily store oil for maintenance purposes as described in the MAINTENANCE, STARTUP, AND SHUTDOWN section. This use of the surge tanks is not routine and the emissions would be small in volume. The operational permit addresses predicted venting volumes from the surge tanks.

There will be no degassing or cleaning of any Tanker holds or tanks. All Tankers will be loading cargo only and no cleaning of any tanks will be allowed.

4. Abrasive blasting or surface coating of platform or dockside vessels. If there are anticipated to be routine structure and/or equipment maintenance such as surface coating operations including abrasive blast cleaning, please characterize these sources, estimate the emissions, and identify rule applicability for the operations. In addition, if any crude oil washing is anticipated to be performed while the VLCC are moored to the SPM or in conjunction with the operation of the offshore site, please characterize those operations, any emissions from those operations, and associated monitoring, testing, recordkeeping, and reporting.

Response: The designed life of the platform coatings is 20+ years. Sandblasting and recoating of the platform structure should not be required within this defined period, other than spot maintenance where coatings are damaged by contact with metal objects such as hammers, wrenches, scaffolding, metal objects, or ropes.

No Crude Oil Washing (COW) will take place within Texas GulfLink Deepwater Port limits. COW takes place at the port of discharge or outside of port limits. All Tankers must maintain an oil record book which details all cargo transfers and COW operations.

Crude Oil Washing (COW) takes place at the port of discharge or outside of port limits. The cargo pumps are used during discharge operations when COW is normally performed as the pumps provide the pressure for the COW to take place. No cargo pumps are required to be operated for loading operations. The pump room is isolated during loading. Texas GulfLink will state in the Boarding Package forms that "Washing of any cargo tanks, bunker tanks, diesel oil tanks, and gas freeing operations or purging of cargo tanks is prohibited within the Texas GulfLink Deepwater Port." *Prior to the water washing of any cargo tanks on a Tanker, the tanks must be purged to the atmosphere to lower the hydrocarbon levels within the tank to below 2%. Gas Freeing is required prior to cargo tank entry with venting to the atmosphere.* Prior to loading of any Tankers at the Texas GulfLink Deepwater Port, all Boarding Package Forms must be executed. *(Texas GulfLink Deepwater Port limits covers the Safety Zone, Anchorage Area, and SPM Moorings).*

There will be no dockside vessels.

5. The PSD application page 4 references emergency diesel engines, but such engines are not elsewhere identified. Are these engines for normal power generation for the offshore facilities or are they emergency use only? For all engines, NSPS IIII would appear to require the control of SO_2 by limiting sulfur content of the fuel to 15 ppm as would state-BACT for such units. Please explain how your emissions calculations included this consideration, or if they did not and should have, please include them.

Response: The description of the electric generator engines on Page 4 (Section 2.0) of the PSD application as being emergency-use is incorrect. The two generators would be used to supply electric power to the offshore facilities, thus, would not be emergency use. The generators are sized to be redundancy in the event of equipment failure. Only once will be used at a time. The other sections of the application (e.g. Section 3.3, the emission rate calculations, etc.) correctly describe the two generators as non-emergency use. Only Page 4 had the error and it has been corrected.

The SO_2 emission rate calculations for the 6 offshore diesel-fired engines (i.e., 2 electric generators, 2 portal cranes, and 2 emergency firewater pumps) were initially estimated using the SO_2 emission factor of 0.00205 lb/hp-hr from AP-42, Sec. 3.3, Table 3.3-1 because the proposed diesel engines will all be less than 600 hp (i.e., so not considered "large" stationary diesel engines, as addressed by AP-42, Sec. 3.4). However, the proposed diesel engines will be considered "new" engines, and have cylinder displacements of less than 30 L/cyl. Therefore, per 40 CFR §60.4207 (NSPS IIII), the engines will need to burn low sulfur diesel fuel meeting the requirements of 40 CFR 80.510(b). Per 40 CFR 80.510(b)(1)(i), all nonroad diesel fuel must have a per gallon sulfur concentration not to exceed 15 ppm. The SO_2 emission rate calculations for the offshore diesel engines will be revised to account for this low sulfur requirement.

6. The PSD permit application does not mention if there will be any emissions associated from startup, shutdown and maintenance activities. Does GulfLink anticipate Maintenance, Startup and Shutdown (MSS) emissions from sources located offshore? If so, EPA needs to ensure that these operating scenarios are properly included in the permit or they will be unauthorized. Typically, EPA will permit these emissions by either establishing a separate alternative BACT that applies during MSS, or we may include the emissions into an emission point as part of our BACT determination for that unit with the expectation that the unit will meet BACT limits at all times. For the permitting record, please provide additional information regarding the facility's MSS emissions and GulfLink's preference on how BACT for MSS emissions should be applied in the permit for the offshore operations. Please be sure to include information for all operational scenarios detailing MSS emissions and associated monitoring, testing, recordkeeping and reporting.

Response: Texas GulfLink will meet BACT limits for the anticipated Maintenance, Startup and Shutdown (MSS) emissions and activities at all times.

For the proposed offshore operation, there will be insignificant startup or shutdown-related emissions. The Startup operation will ~~does~~ not require venting of the pipelines with crude oil product in the lines. At commissioning, hydrotest water that meets discharge guidelines will be pumped from onshore throughout the entire subsea pipeline, platform pipelines, PLEM, Riser Hoses, CALM Buoy, and Floating Hoses.

The venting and filling of these lines will be accomplished during the hydrotest water line fill. Maintenance related draining of platform lines for pigging operations and to make repairs to pumps and valves is addressed within the PSD emission calculations. The change out of riser subsea hoses and floating hoses will require a water plug to be pumped by the Support Boats to displace the crude oil back to the platform.

The surge tank will temporarily store this crude oil and the surge tank will be vented to atmosphere. The venting of the surge tanks for water plugs is addressed within the operational permit. The capacity of the surge tank will be 2,000 bbls, and if necessary, the maintenance oil pump can inject the crude oil back into the inbound 42" main crude oil pipeline. The PSD application addresses potential VOC emissions from the uncontrolled platform surge tank.

The Utility Support Boat will take back the water plug after hose replacement, and transport this oily water mixture ashore for proper disposal. The Platform Superintendent will be responsible for maintaining records of any periods when venting of the surge tank takes place. The Superintendent will also be responsible for comparing actual vented volumes with operational permit limits.

Any cases where vented volumes exceed operational permit limits the Port Superintendent will notify the Shoreside Manager of Operations with specific details on any areas where a release has occurred outside of the permitted volumes.

7. The PSD permit application does not provide a compliance monitoring strategy for the marine loading operation. EPA requests that GulfLink propose a monitoring, recordkeeping and reporting strategy to ensure enforceability of the BACT requirements pursuant to 40 CFR 52.21(n).

Response: The monitoring of vented vapors will occur on the offshore terminal platform. Monitoring from the deck of the Tanker will have to be accomplished by means of portable area sampling devices, which will be setup in the vicinity of the cargo manifold to monitor on deck vapor emissions. The unit will include audio and visual alarms, battery operation, downloadable data, and be intrinsically safe classed.

A similar unit will also be located on the terminal platform. The Cargo Transfer Assistant (CTA) on duty will monitor the unit on the Tanker and the Vessel Traffic Controller will monitor the unit on the platform by remote readouts provided by the units. Upon detection of any vapors above predetermined set point alarm limits, loading will be reduced in rate or suspended as necessary. Records of data downloaded for these portable area sampling units will be maintained in the Mooring Master's office and reviewed by the Mooring Masters.

All Tankers loading at Texas GulfLink Deepwater Port will have a Cargo Transfer Assistant (CTA) on duty at all times while loading. The CTA will monitor the Tankers' cargo tanks operating pressure, cargo levels, loading rates, and loading fill valves to verify the Tankers is operating in accordance with the Tanker's Class approved VOC Plan and Texas GulfLink port requirements. The Tanker is required to keep records under their VOC Management Plan and a copy of the records covering the loading period will be obtained by the CTA.

If the Tanker is unable to comply with their VOC Management Plan or Texas GulfLink Deepwater Port requirements for reducing emissions, loading will be suspended.

From the Volume IV of the Texas Deepwater Port Licensing Application

OPERATING MANUAL

25.13. Boarding Packages

Preprinted Tanker Boarding Packages will be prepared and completed for all Tankers. Forms included in the Boarding Packages are:
General Requirements Statement: Statements on jurisdiction, Liability, Pollution Response Responsibility, Ballast Water Management Plan, Tanker VOC Manual and Support Boats Services.

8. MACT EEEE, Organic Liquids Distribution, appears to apply to this proposed facility. If upon your review, it does apply, please identify any emissions limitations or standards and associated monitoring, testing, recordkeeping, or reporting requirements needed to assure ongoing compliance with the requirements. If the subpart does not apply to your proposed project, please provide the rationale as to why that is the case.

Response: In 40 CFR §63.2406 (Definitions), an "organic liquid" means:

(1) Any non-crude oil liquid or liquid mixture that contains 5 percent by weight or greater of the organic HAP listed in Table 1 to this subpart, as determined using the procedures specified in §63.2354(c).

(2) Any crude oils downstream of the first point of custody transfer.

(3) Organic liquids for purposes of this subpart do not include the following liquids:

(i) Gasoline (including aviation gasoline), kerosene (No. 1 distillate oil), diesel (No. 2 distillate oil), asphalt, and heavier distillate oils and fuel oils;

(ii) Any fuel consumed or dispensed on the plant site directly to users (such as fuels for fleet refueling or for refueling marine vessels that support the operation of the plant);

(iii) Hazardous waste;

(iv) Wastewater;

(v) Ballast water: or

(vi) Any non-crude oil liquid with an annual average true vapor pressure less than 0.7 kilopascals (0.1 psia).

The only liquid material to be stored at the proposed offshore facility will be diesel fuel for the electric generator, portal crane, and emergency firewater pump engines. Crude oil will not be stored at the offshore facility. Per par. (3)(i) above, diesel (No. 2 distillate oil) is not defined as an "organic liquid" for the purpose of 40 CFR Subpart EEEE. The proposed surge tank on the offshore platform will normally be empty and will temporarily contain crude oil only when there is an upset condition. A surge control vessel is not a defined "storage tank" under the rule, per §63.2406.

Additionally, 40 CFR §63.2334 states "you are subject to this subpart if you own or operate an OLD operation (emphasis added) that is located at, or is part of, a major source of HAP emissions. An OLD operation may occupy an entire plant site or be collocated with other industrial (*e.g.,* manufacturing) operations at the same plant site."

In §63.2406 (definitions), an *OLD operation* means "the combination of activities and equipment used to store or transfer organic liquids into, out of, or within a plant site (emphasis added) regardless of the specific activity being performed. Activities include, but are not limited to, storage, transfer, blending, compounding, and packaging."

In §63.2406 (definitions), a *Plant site* means "all contiguous or adjoining surface property (emphasis added) that is under common control, including surface properties that are separated only by a road or other public right-of-way. Common control includes surface properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, or any combination."

"Surface property" is not defined in §63.2406. Therefore, a review of other MACT rules was conducted to find this definition. The only term that came close was "surface site" in 40 CFR 63 Subpart HH (§63.761), which applies to Oil and Natural Gas Production Facilities (which is not applicable). We believe "surface property" in the context of the OLD MACT rule means property that is onshore (on land surface). As such, the offshore platform will not be a "surface property"; therefore, not a "plant site"; therefore, it will not meet the definition of an "OLD operation".

In summary, we believe 40 CFR 63 Subpart EEEE (OLD MACT) does not apply to the proposed Texas GulfLink offshore facility because: (a) the only liquid to be transferred and stored offshore will be diesel, which is not a defined "organic liquid" and (b) the offshore facility does not meet the definition of an "OLD operation".

9. The VOC BACT analysis does include a reference to a ships operations best management plan which includes various references to practices to reduce the gas formation in the cargo tanks but the requirement appears to be a ship based requirement, not a facility based requirement. How are the management directives for the ship operations translated into control or assurance of compliance that can be exercised by the operator of the port? Since the actual requirement for ship operations vary from ship to ship, please identify how the permit would contain and the source implement binding BACT requirements (the emission limits and/or work practice requirements as well as the supporting monitoring, testing, recordkeeping, and reporting requirements) that would demonstrate ongoing compliance with the BACT determination.

   Response: From the **Revised Marpol Annex VI, regulation 15.6 - MEPC.176(58)**

   "A tanker carrying crude oil shall have on board and implement a VOC Management Plan approved by the Administration *(Country of Tanker's Registry)* . Such a plan shall be prepared taking into account the guidelines developed by the Organization *(IMO).* The plan shall be specific to each ship and shall at least:

   .1 provide written procedures for minimizing VOC emissions during the loading, sea passage and discharge of cargo;
   .2 give consideration to the additional VOC generated by crude oil washing;
   .3 identify a person responsible for implementing the plan; "
   .4 TGL operations control center is in charge of loading operations at all times. Communication will occur with the CTA. If communication is lost, operations will be shut down until it can be re-established.

The purpose of the VOC management plan is to ensure that the operation of a tanker, to which regulation 15 of MARPOL Annex VI applies, prevents or minimizes VOC emissions to the extent possible.

The Tanker's class approved VOC Management Plan requires them to monitor vapor release and keep records.

The appropriate record keeping is as follows:

1. The target or minimum pressure within the tank gas/vapor system for the specific voyage.
2. A record of the time and pressure within the tank gas/vapor system before the release takes place.
3. A record of the time and pressure within the gas/vapor system after the release has been completed.

Use a tabulation form to record release of VOC from ship operations

Entries are to be recorded on each occasion of VOC release during cargo loading, transit, discharge/ballasting and COW.

A person shall be designated in the VOC management plan to be responsible for implementing the plan and that person may assign appropriate personnel to carry out the relevant tasks.

RESOLUTION MEPC.185(59) Adopted on 17 July 2009
GUIDELINES FOR THE DEVELOPMENT OF A VOC MANAGEMENT PLAN

2. Emissions of VOCs can be prevented or minimized by:

.1 optimizing operational procedures to minimize the release of VOC emissions; and/or

.2 using devices, equipment, or design changes to prevent or minimize VOC emissions.

3. To comply with this plan, the loading and carriage of cargoes which generate VOC emissions should be evaluated and procedures written to ensure that the operations of a ship follow best management practices for preventing or minimizing VOC emissions to the extent possible. If devices, equipment, or design changes are implemented to prevent or minimize VOC emissions, they shall also be incorporated and described in the VOC management plan as appropriate.

IMO MEPC.1/Circ.680 27 July 2009

TECHNICAL INFORMATION ON SYSTEMS AND OPERATION TO ASSIST DEVELOPMENT OF VOC MANAGEMENT PLANS

4. While maintaining the safety of the ship, the VOC management plan should encourage and, as appropriate, set forth the following best management practices:

.1 the loading procedures should take into account potential gas releases due to low pressure and, where possible, the routing of oil from crude oil manifolds into the tanks should be done so as to avoid or minimize excessive throttling and high flow velocity in pipes;

.2 the ship should define a target operating pressure for the cargo tanks. This pressure should be as high as safely possible and the ship should aim to maintain tanks at this level during the loading and carriage of relevant cargo;

All Tankers loading at Texas GulfLink Deepwater Port will have a Cargo Transfer Assistant (CTA) on duty at all times while loading. The CTA will monitor the Tankers' cargo tanks operating pressure, cargo levels, loading rates, and loading fill valves to verify the Tankers is operating in accordance with the Tanker's Class approved VOM Plan and Texas GulfLink port requirements.

The Tanker is required to keep records under their VOM Plan and a copy of the records covering the loading period will be obtained by the CTA.

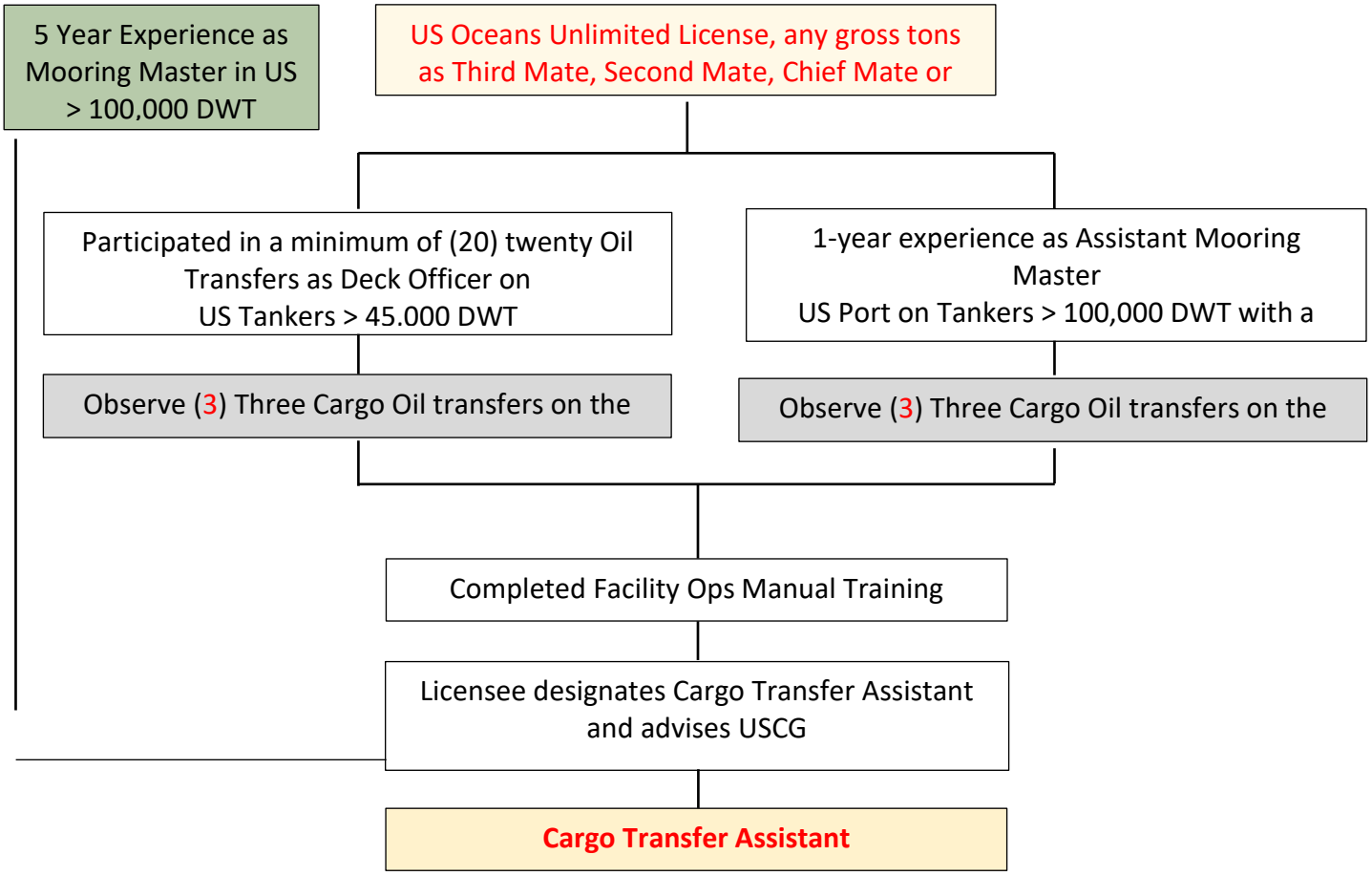
From the Texas GulfLink Operations Manual (Volume IV of the Deepwater Port Application)
OPERATIONS MANUAL

10.9 Cargo Transfer Assistant
10.9.2Duties

The CTA will serve as Person-in-Charge of cargo transfer operations, as the Terminal's Representative. They must ensure that the transfer meets the requirements of 33 CFR § 156.120 - Requirements for Transfer and have completed the Declaration of Inspection per 33 CFR § 156.150, and the Texas GulfLink checklists for loading. They will remain in the vicinity of the Cargo Control Room and in constant contact with the Tanker's PIC during cargo transfer operations. The CTA will usually stand a six-hour watch rotation. While on watch, the CTA will be responsible for the Tanker's position relative to the SPM and act as liaison with the Tanker's Master, Chief Mate, Oil Movement Controller, and Vessel Traffic Controller. The CTA will be responsible for monitoring the weather and seas while on watch. The CTA will be responsible for verifying compliance with Texas GulfLink VOC policy and the Tanker's VOC Management Plan in conjunction with the Chief Mate. This will include the monitoring of Cargo Tank pressure, loading rate and tank sequence, Master Riser control, trailing vented vapor dilution, and the monitoring of any portable area sampling equipment provided by the terminal. If the Tanker is unable to follow their VOC Management Plan or the Texas GulfLink VOC Policy to reduce emissions, loading will be reduced to a flow rate that will allow the Tanker to comply or suspending loading operations and the Port Superintendent notified. Upon completion of loading operations, the CTA will obtain a copy of the Tankers VOC Management Plan record log. The records of the Tanker's VOC Management Plan compliance will be maintained on file in the Mooring Master's Office.

Both the Mooring Master and Assistant Mooring Master will be designated as Cargo Transfer Assistants (CTA), once qualified. They will stand six-hour rotating watches during cargo loading operations as PIC for the Terminal.

CARGO TRANSFER ASSISTANT DESIGNATION CHART



OPERATIONS MANUAL

28.2 VOC Emissions Reduction Policy

METHODS USED TO MINIMIZE VOC EMISSIONS FROM CRUDE OIL CARGO ON TANKERS

OCIMF Volatile Organic Compound Emissions from Cargo Systems on Oil Tankers (1st edition 2019)

All Tankers must have an approved *VOC Management Plan* by regulation Reg 15 MARPOL Annex VI specific to each ship. There is no requirement for a Vapor Emissions Control System (VECS). The purpose of the *VOC Management Plan* is to ensure that the operation of a Tanker, to which regulation 15 of MARPOL Annex VI applies, prevents or minimizes VOC emissions to the extent possible. A *VOC Management Plan*, developed by the operator, is the means used to measure and verify VOC system effectiveness. The Plan identifies equipment, arrangements, operations and conditions with respect to controlling VOC emissions. Personnel responsible for

overseeing the VOC arrangement onboard the Tanker must complete a training program that has been developed for the purpose and include the VOC Management Plan.

VOCs in cargo tanks are caused by a build-up of positive pressure that occurs during loading. The amount of VOCs that have evolved into the inert gas atmosphere is linked to the oil's volatility. VOC emissions are created through vaporization, evaporation, and boiling. These processes can be manipulated to control VOC production in the tank atmosphere.

The four criteria that control the emissions from a Crude Oil Tanker

- Volatility of vapor
- Temperature of liquid and gas phase in the cargo tank
- Deck Pressure within the tank
- Size of the vapor phase within the cargo tank

Best Practice to follow when Loading at Gulflink Deepwater Port :

While maintaining the safety of the ship, the best practice to follow in conjunction with Tanker's *VOC Management Plan,* as required by the Gulflink Terminal while loading will include:

A. Use of manual pressure relief procedures to control venting. When venting to reduce tank pressure is required, the decrease in the pressure in the tanks should be as small as possible to maintain the tank pressure as high as possible;

A. Loading sequence and rates (reduced initial loading rate to cover tank bottoms)

B. The loading procedures should take into account potential gas releases due to low pressure and, where possible, the routing of oil from crude oil manifolds into the tanks should be done so as to avoid or minimize excessive throttling and high flow velocity in pipes (excess capacity of open tanks vs loading flow rate)

C. Avoid high velocity in tanker pipelines (do not restrict flow, maintain minimum manifold pressure, monitor manifold pressure)

D. Define and maintain operating pressure in the tanks. This pressure should be as high as safely possible and the ship should aim to maintain tanks at this level during the loading in tanks ~70% of allowable (1400mmWG)

E. Tankers should arrive at the Deepwater Port with minimal inert gas tank pressure.

Monitoring of Tanker VOM Plan and Texas GulfLink Policy of VOC reductions.
The CTA will be responsible for verifying compliance with Texas GulfLink VOC policy and the Tanker's VOC Management Plan in conjunction with the Chief Mate. This will include the monitoring of Cargo Tank pressure, loading rate and tank sequence, Master Riser control, trailing vented vapor dilution, and the monitoring of any portable area sampling equipment provided by the terminal. If the Tanker is unable to follow their VOC Management Plan or the Texas GulfLink VOC Policy to reduce emissions, loading will be reduced to a flow rate that will allow the Tanker to comply or suspending loading operations and the Port Superintendent notified. Upon completion of loading operations, the CTA will obtain a copy of the Tankers VOC Management Plan record log. The records of the Tanker's VOC Management Plan compliance will be maintained on file in the Mooring Master's Office.

10. The PSD permit application references using fugitive component emissions factors developed for Petroleum Distribution facilities. Since those sources are predominantly gasoline storage facilities, why was that chosen to reasonably represent the anticipated crude oil emissions? Further, you suggest taking emissions reductions credit for an AVO program that would appear to be impractical to implement for the SPMs that would be included in the suite of sources to monitor. Please provide more specific justification for LDAR program you propose, including the emissions rates and control effectiveness for this operation. Please also include if the proposed fugitive monitoring program will include monitoring for methane (CH_4).

Response: For the proposed offshore operation, two separate fugitive VOC emissions calculations were performed: one for the platform, the other for the SPMs.

The platform fugitive emissions were calculated based upon TCEQ's fugitives emissions guidance document (APDG 6422, dated June 2018). The Petroleum Marketing Terminal (PMT) emission factors were chosen based on the TCEQ's memo (dated 12/5/2005) allowing these factors for equipment components in pipeline breakout stations for crude oil and fuel service (gasoline, diesel, and jet fuel). Of the different types of TCEQ emission factors from which to choose: SOCMI, Oil and Gas Production, Refinery, and PMT, we felt that the PMT factors fit the offshore platform operation best. The offshore platform is not a SOCMI facility, Oil and Gas (i.e., upstream) production site, nor a refinery unit. The proposed Texas GulfLink *onshore* tank terminal is essentially a breakout station, and the crude oil from that facility is transferred directly to the offshore platform for loading into ships. So, the crude oil in the offshore platform piping is, by extension, oil from a breakout station. Per TCEQ guidance (Page 4 of APDG 6422), PMT factors cannot be used for loading racks at chemical plants, large terminals for hire, and refineries, and the offshore platform is none of these types of facilities. Per TCEQ guidance, use of the PMT factors requires a monthly AVO inspection. Texas GulfLink would commit to a monthly AVO inspection of the platform piping components. Finally, a control credit is already included in the PMT factors, so no additional control credit can be applied to these factors. The fugitive VOC emission rate for the offshore platform can be found in the application calculation summary tables.

The SPM fugitive emissions were calculated based upon TCEQ's Addendum to RG-360A (dated January 2008). The fugitive emission factors were obtained from Table 4 (Average Emission Factors – Petroleum Industry). Specifically, the factors for Oil and Gas Production Operations, for Light Oil > 20° API were used. We believe none of the emission factor source categories (i.e., for SOCMI, Oil and Gas Production, Refinery, or Petroleum Marketing Terminal) reasonably apply to an SPM system, so we chose the worst-case (highest) factors for the valves and flanges making up the two SPM systems, which were the Oil and Gas Production Operation factors for Light Oil > 20° API. Use of these factors does not require a monthly AVO. Texas GulfLink does not plan on conducting an AVO inspection of the two SPMs.

Any fugitives monitoring program to be performed for the offshore facilities will not include monitoring for methane, as very little to no methane emissions are expected resulting from crude oil loading. By the time the crude oil travels from the field (O&G production site) to the Texas GulfLink onshore tank terminal, is stored for a time in the onshore tanks, then transferred to the offshore platform for loading, almost all of the natural gas (including methane) entrained in the oil will have evolved out. Texas GulfLink does not expect more than very small amounts of natural gas (including methane) to be left in the crude oil at the point of loading into the ships.

MACT Applicability

11. Section 6.1 of the PSD application presents GulfLink's evaluation of MACT Subpart Y applicability to their proposed project while Appendix E provides more details of considerations under Case-by-Case MACT (112(g)) applicability. In Appendix E ,Texas GulfLink "asserts that the anticipated emissions are more appropriately considered through a case-by-case MACT analysis because:

    (1) the DWP proposed source does not fall within the types of sources or subcategories of sources covered by Subpart Y;
    (2) VCUs and VRUs are not "achieved in practice" for a DWP such as Texas GulfLink; and, most importantly,
    (3) the use of VRUs/VCUs on offshore platforms as would be required under Subpart Y raises serious safety concerns (i.e. safety being among the "non-air quality health impacts" that must be considered under any MACT analysis). Under a case-by-case MACT analysis, the only level of emissions control for similar sources "achieved in practice" is that achieved using submerged fill loading under a VOC Management Plans per MEPC.185(59) and MEPC.1/Circ. 680."

Prior to GulfLink's application submittal, on April 5, 2019, Rob Lawrence EPA Region 6 Policy Advisor for Energy Issues wrote a letter to Mr. Curtis E. Borland of the U.S. Coast Guard Vessel and Facilities Standards Division and Ms. Yvette Fields, Director, Office of Deepwater Ports &

Offshore Activities concerning the applicability of MACT to offshore crude oil export facilities. We have attached a copy of the letter to these comments, in order for you to compare your design with the two types of project designs (i.e., fixed platform vs non-platform type designs) and how we view each design in terms of Subpart Y applicability.

As recognized in your application (Footnote 4 of Appendix E of the PSD permit application) at least one other applicant has represented a fixed platform and SPM based VLCC crude oil export terminal. The implication in the footnote appears to be that that the other source is configured in a way that does not, in GulfLink's perspective, leave enough of a safety margin as to distances, and because of the greater distances proposed by Gulflink between platform and SPM buoys compared to the referenced project's buoys, technical problems preclude vapor recovery.

The project you propose can fall within the Transfer Losses Emissions source category when considering a 112(g) analysis. That category is one of five explicitly discussed in the December 27, 1996 preamble to the 112(g) final rule (61 FR 68384). EPA has previously stated that within a source category a wide variety of different sources are included and the differences may be due to variations in equipment operations, design, waste type, etc. In addition, the preamble to 112(g) directs us to consider transferrable technologies when establishing the minimum criteria for new sources. The supporting analysis for an evaluation of potentially transferrable technologies may be found in the 112(g) implementing regulations at §63.43(d)(1) – (4). We note further that the use of VRUs/VCUs within the source category of Transfer Losses have been *achieved in practice* for other sources within the category. An evaluation of this potentially transferrable technology is needed to support this statement. With respect to your concerns of safety, we note that the USCG has promulgated regulations to address safety requirements. EPA regulations were established to provide uniform emission standards. Therefore, we encourage you to take into consideration the information EPA provided in our April 5, 2019 letter to U.S. Coast Guard as you reassess whether 40 CFR 63 – Subpart Y is applicable to GulfLink based on your project design or if you attempt to further develop a more robust 112(g) analysis that would support a case by case 112(g) decision. Either way, the application is insufficient with respect to addressing hazardous air pollutant emissions.

Response: Texas GulfLink is coordinating a meeting with EPA RTC through Mr. Juan Santiago, following initial meetings with EPA Region 6 and EPA Headquarters regarding safety, operational, and process engineering concerns with utilizing vapor recovery systems with an offshore loading port comprised of a platform, pipeline, and CALM buoy.

Texas GulfLink was provided guidelines by MARAD and the USCG to formally submit major supplements to its Deepwater Port Licensing Application by letter stating purpose, why, and contents to Mr. Patrick Clark and Mr. Linden Houston.

Texas GulfLink will submit a robust 112(g) analysis for consideration to its Deepwater Port Licensing Application, and include EPA Region 6 personnel within the supplement.

Air Quality Analysis

Please note that EPA is still evaluating the sufficiency of the Air Quality Analysis and will contact Texas GulfLink with any additional information requests. Also note, that many of these items could have been identified earlier as part of modeling protocol development discussions between the applicant and EPA, which did not take place in advance of the submittal of the PSD permit application. We look forward to working with you to address the comments and revise the air quality analysis, as needed.

12. Receptor Grid – Section 3.2 of the Air Quality Analysis report indicates that discrete receptors spaced 3 miles apart were placed along the Texas shoreline in the area closest to the proposed facility location with some additional fine grid receptors having 1 to 2 km spacing added in areas of higher modeled concentrations. This receptor grid is not sufficient for an air quality analysis completed in support of a PSD permit application because it does not account for the off-shore ambient air located over water. A new receptor grid centered on the proposed facility should be developed with a starting point for receptors located at the ambient air boundary. Revised modeling should be conducting using the revised receptor grid.

    Response: A receptor grid will be developed with a starting point for the receptors located at the ambient air boundary. The ambient air boundary for TGL will be defined as the Area-to-be-Avoided (ATBA). Surrounding the platform and VLCCs will be a safety zone to exclude and restrict non-project vessel operations. These non-project vessels will not be allowed to anchor within the safety zone boundary. The established safety zone will be monitored via the port control center, vessel traffic control, and port support vessels.

    Receptors for the model will be placed so that the maximum off-property ground-level concentrations from the TGL facility emission sources could be determined. A Cartesian system [Universal Transverse Mercator (UTM)] will be implemented for all receptors, as well as for the fence line and emission sources. The fence line used in this analysis is the safety zone plus the ATBA boundary. Discrete receptors will be placed at 100-meter intervals along the facility fence line. Additional receptors will be placed at 100-meter intervals from the fence line out to one kilometer, 500-meter intervals from one kilometer to 5 kilometers, and one kilometer spacing out to ten kilometers. The receptor grid will be extended to capture the extent of the area of impact (AOI). For the refined analysis, only significant receptors in the AOI will be included.

13. Health Effects Review – In accordance with the requirements of the Deepwater Port Act, the permit application should address all applicable requirements of the nearest state's permitting program, insomuch that those requirements do not conflict with federal requirements. Based on the proposed facility's location, the nearest state is Texas.

Therefore, all applicable requirements of the Texas air permitting program should be addressed, including the requirement that an applicant conduct a health effects analysis to demonstrate that emissions of non-criteria pollutants from the facility will not adversely affect the public's health or welfare. A health effects review for the proposed facility, addressing air contaminants for which TCEQ has defined an effects screening level (ESL) should be completed and provided as part of the permit application.

Response: A Health Effects Review will be conducted following the Texas Commission on Environmental Quality (TCEQ) permitting guidelines and will address applicable pollutants emitted from the proposed offshore facility that have established Effects Screening Level (ESL) limits.

14. State Property Line Standard Analysis – Similar to the requirement for the Health Effects Review, the facility's permit application should address the requirement that an applicant conduct a State Property Line Standard Analysis for SO_2, H_2S, and H_2SO_4, as applicable, to demonstrate that the resulting air concentrations from the facility's emissions will not exceed the applicable state standard. A state property line standard analysis for the proposed facility should be completed and provided as part of the permit application.

    Response: A State Property Line Standard Analysis will be conducted following the TCEQ's permitting guidelines. The analysis will address emissions of applicable sulfur compounds that have an established State Standard.

15. NO_2 cumulative analysis – Section 4.3 of the Air Quality Analysis report indicates that refined modeling was required to demonstrate compliance with the 1-hour NAAQS for NO_2. It appears that as part of the refined modeling analysis, the applicant summed the modeled concentrations from the proposed facility with the background concentration from an existing air quality monitor. Please confirm if off-site inventory sources were also included in the modeling analysis? If so, please provide information on what sources were included/excluded from the cumulative analysis, including information regarding modeled emissions and distance to the proposed facility. If off-site inventory sources were not included, the refined modeling analysis should be revised to account for the cumulative impacts from the proposed facility and any nearby off-site inventory sources, along with the background concentration. Without the inclusion of the nearby sources, the analysis is not adequate to demonstrate compliance with the 1-hour NAAQS for NO_2.

    Response: The NO_2 cumulative analysis will include off-site inventory within the area of Impact (AOI) defined by the significant impact analysis. Off-site data will be obtained from BOEM's 2014 Platform Source Gulfwide Inventory. A list of these facilities with the stack parameters and emissions modeled will be provided. Justification will be provided, if

appropriate, demonstrating the use of offsite inventory and background monitoring data in the modeling demonstration results in "double-counting" of emissions, leading to over conservative results.

16. Background Air Quality Data – Section 4.6 of the Air Quality Analysis report lists the monitoring stations proposed by the applicant to represent background concentrations. However, no information is provided in the report to demonstrate that the chosen monitor locations are representative of the proposed facility's location. This information is needed to justify the use of the monitoring data from these sites as background concentrations in the air quality analysis.

    Response: Following TCEQ's guidelines on the use of monitors for background data, justification will be provided to demonstrate that the chosen monitors are representative of the proposed facility's location.

17. Modeling Files – A copy of all modeling input and output files should be submitted as part of the permit application to be included in the permit record and to facilitate EPA's review of the air quality analysis.

    Response: All modeling input and output files will be provided to EPA-6 electronically.

Title V Federal Operating Permit Applicability and Application

18. As part of your overall application package, you represent that the facility as proposed is subject to Title V operating permit program. However, that application section of the submittal is substantially incomplete and consists of only a brief overview of proposed rules that may apply, and emissions units that may be included, but does not include a detailed state and federal rule applicability review and no supporting emissions calculations, monitoring, testing, recordkeeping or reporting requirements. Nor does it contain an initial compliance plan and does not include a Responsible Official Signed and dated application form. Is it your intent to apply and concurrently seek the development of both a PSD and Title V permit? If so, please submit a full and complete Title V application. At present, the information presented is substantially incomplete; a full and complete application must be submitted in order for us to act on the proposal.

Response: Texas GulfLink intends to submit a complete Title V permit application at an appropriate time after finalizing the PSD permit application. We seek guidance from EPA-6 on

whether we must follow TCEQ's (i.e., nearest adjacent State) Title V application requirements (which do not include emission rate calculations) or federal Title V application requirements.